MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016

BBS2034 – KNOWLEDGE-BASED BUSINESS SYSTEMS
(All sections / Groups)

16 OCTOBER 2015
9.00 a.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 4 pages.

2. Attempt **ALL** questions in Part A (85%) and Part B (15%). The distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

PART A: STRUCTURED QUESTIONS

QUESTION 1

(a) Describe the **SIX**-step of CRISP-DM data mining process.   (12 marks)

(b) Describe SEMMA data mining process.   (10 marks)

(c) Describe data pre-processing steps.   (8 marks)

(Total: 30 marks)

QUESTION 2

(a) What are **FIVE** same characteristics of well-designed dashboard and scorecard?
(10 marks)

(b) Assuming you have collected transaction data from Automated Teller Machine (ATM), describe and explain how dashboard can be used to demonstrate three different types of information to top management. Use diagram to support your answers.

(10 marks)

(c) Assuming you have collected transaction data from Flight Ticket Reservation System, describe and explain how scorecard can be used to demonstrate **THREE** different types of information to top management. Use diagram to support your answers.

(10 marks)

(Total: 30 marks)

QUESTION 3

(a) What is virtual world?   (2 marks)

(b) What are **FIVE** advantages and **FIVE** disadvantages of providing decision support through virtual worlds? Explain your answers.   (20 marks)

(c) What is the logic of combining business intelligence and social networks?
(3 marks)

(Total: 25 marks)

Continued...

PART B: CASE STUDY

The Netflix Prize

Netflix is the world's largest online movie provider. For a flat monthly fee, subscribers have access to thousands of movies and television shows through mail delivery or by download. For DVDs coming in the mail, the subscriber maintains a title queue on Netflix's site that he or she wants to watch, listed in order of viewing preference. Netflix chooses which movies or shows to mail next from the queue, and when one disk is returned, another is mailed. Customers are never charged late fees, and after viewing the DVD simply drop it in a mailbox using the prepaid envelope Netflix provides.

Netflix has consistently ranked high in customer satisfaction surveys. In fact, the service has proved so successful that in April 2009, the company reported that it had shipped its two-billionth DVD. Its streaming "instant watch" service has proven extremely popular, with over 26 million subscribers in 2012.

A key feature of the Netflix service is customers' ability to rate the movies they have seen on a five-point scale from "hated it" to "loved it." Based on customers' ratings, Netflix's movie recommendation system, Cinematch, then displays other movie titles customers might enjoy. While the system works well for Netflix's purpose, it admits that improvements are possible. With that in mind, Netflix started a contest in 2006 to improve their movie rating/recommendation system. The grand prize was US$1 million, but to win the prize, contestants had to improve Cinematch's results by 10 percent - a difficult task. According to the contest rules published at the Netflix Prize Web site, "It's 'easy' really. We provide you with a lot of anonymous rating data and a prediction accuracy bar that is 10 percent better than what Cinematch can do on the same training data set. (Accuracy is a measurement of how closely predicted ratings of movies match subsequent actual ratings.) If you develop a system that we judge most beats that bar on the qualifying test set we provide, you get serious money and the bragging rights. But only if you share your method with us and describe to the world how you did it and why it works."

Contestants registered for the contest as teams, and entries were limited to one per day. Any team whose members came up with an algorithm that improved Cinematch performance by 1 percent would win US$50,000. The US$50,000 "progress prize" would be awarded once annually until someone reached the 10 percent increase or the contest ended. Entries would continue to be accepted in the Netflix Prize contest until the US$1 million prize was awarded or until 2011, whichever came first. On September 21, 2009, a team led by AT&T researchers known as "BellKor's Pragmatic Chaos" took the grand prize by improving over the Cinematch score 10.06 percent. Immediately following the close of the contest, Netflix announced plans for a second contest in which they would release anonymous information on 100 million Neflix users. The contest would center around predicting the movie preferences of users based on key information like age, gender, and geographic location.

However, two and a half months after the first contest ended, a lawsuit filed against Netflix put the second contest in jeopardy. The lawsuit, Doe v. Netflix, was filed in California by an anonymous lesbian mother claiming that Netflix invaded her privacy. The logic behind her claim was that by making the movie ratings available in the data set - along with the date of the rating, the movie information associated with the rating, and a unique identifier number for the subscriber that made the rating - anyone would be able to take that information and match it up against other publicly available data to determine someone's identity. In fact, that very scenario happened when two researchers working with the Netflix Prize data identified several users by comparing movie reviews on the Internet Movie Database (a popular movie information site) with the ratings in the "anonymous" data provided for the Netflix Prize contest. Information discovered about the identified users included political ideologies and sexual orientations.

In March 2010, the lawsuit was settled between the anonymous plaintiff and Netflix. Although Netflix did not admit to any wrongdoing, part of the settlement agreement was the cancellation of the second Netflix Prize contest. In 2012, Netflix announced that the algorithms created by the winners of the Netflix prize would not

Continued...

be implemented, as "the additional accuracy gains... did not seem to justify the engineering effort needed to bring them into a production environment" (Amatriain & Basilico, 2012).

(Source: Information System Today, 6th Edition, Valacich and Schneider, Pearson)

QUESTIONS

1. In what ways could Netflix visualize movie ratings, preferences, or trends to provide its subscribers with additional "movie intelligence"? (5 marks)

2. What are the pros and cons of having the winner of the Netflix Prize share the improved Cinematch method? (5 marks)

3. Describe another problem in business or society that could utilize an approach similar to that for winning the Netflix Prize (i.e., a contest that anyone can try to solve). (5 marks)

(Total: 15 marks)

End of Page